Space Weather Forecast

Issued on Sunday, 07 July 2024 at 13:19 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Further Moderate-class X-ray likely.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Moderate with a flare coming from the southeast of the disc at 07/2315 UTC. There are eight sunspot regions on the disc. The largest region is now in the southeast, with some magnetic complexity becoming apparent. The second largest region is now in the northwest, and is getting harder to assess as it approaches the limb. Another region near the west limb has developed a weak trailing spot, whilst a newer region near south centre disc has only small spots but does have a slightly complex magnetic structure. All other groups appear small and simple at present. No Earth-directed Coronal Mass Ejections (CMEs) have been observed during the past 24 hours.
Solar Wind / Geomagnetic Activity: Solar winds as observed by ACE at L1 were at background levels. The Interplanetary Magnetic Field was weak, with the north-south component also varying weakly. Geomagnetic activity was Quiet (Kp 0-2).
Energetic Particles / Solar Radiation: Solar radiation was measured at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: There is likelihood of further Moderate-class flares, with a slight chance of Strong flares, most likely from the largest sunspot region in the southeast. Upcoming sunspot regions arriving over the eastern solar horizon should help compensate for regions rotating off the west limb.
Solar Wind / Geomagnetic Activity: No Earth-directed CMEs feature in the forecast. The solar wind is most likely to be at slow-ambient levels for much of this period. However, a coronal hole currently near south centre disc could produce slightly elevated or elevated wind speeds later in the period, perhaps later on Day 4 (10 Jul). Any significant geomagnetic response is unlikely due to Earth's proximity to the solstice.
Geomagnetic activity is expected to be mostly Quiet to Unsettled (Kp 0-3) through the next four days, however there is a chance of the odd Active (Kp 4) interval on Day 4 due to potential fast wind influence.
Energetic Particles / Solar Radiation: Solar radiation storms are unlikely, but with a slight chance of reaching S1/Minor Radiation Storm or greater levels. This risk increases a little as the largest region currently in the southeast rotates towards centre disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	60	60	60	60
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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